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Playhouse Made From Prefabricated Parts

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The invention concerns a playhouse made from prefabricated parts having supporting posts as well as a roof which is affixed to the supporting posts.

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Playhouses are very popular among children because, on the one hand, they offer a multiplicity of different possibilities for play and therefore are highly attractive over long periods of time and, on the other, the closed interior space presents a region where individuals or smaller groups can withdraw with the possibility of playing without being disturbed there. Also from the educational viewpoint, playhouses have proven particularly advantageous because they promote the children's creativity as well as their social group behaviour, during construction and dismantling train planning and spatial conceptions and even in closed rooms permit active games. Therefore, they are widespread and found in various forms in private households, kindergartens and playgrounds.

For example, the utility model DE 85 22 689 discloses a playhouse made from prefabricated parts in which a horizontal roof is affixed on a plurality of vertical supporting posts. Owing to the accessibility of the roof, which can be reached, for example, via a ladder, the number of possible play variations is substantially increased. To ensure sufficient carrying capacity, the roof rests edge-wise

circumferentially on support frame parts, which connect the supporting posts to one another in a horizontal direction, while the thickness of the roof slabs is constant and their span is therefore limited between the supporting frame parts.

With this embodiment the lengthy and time-consuming assembly proves disadvantageous, which arises therein that the necessary stability of the house is achieved by means of frame elements. They make not only the assembly more difficult but also limit the variation possibilities to a considerable degree. Accordingly, a permanent construction is mostly effected, which inside rooms limits considerably the usefulness of the respective room. Moreover, children have in this way few possibilities to undertake conversions and make additions which promote their design and planning abilities in an excellent way.

Against this background, the invention has the objective of developing a playhouse made from prefabricated parts which can be constructed easily and quickly and whose elements can be assembled flexibly and in differing ways.

According to the invention, this task is solved therein that the roof is a self-supporting slab, the slab rests directly upon the supporting posts and the supporting posts are provided with limit stops or locking elements against which the slab rests in a horizontal direction.

The basic idea of the proposed playhouse consists in the elimination of the frame parts common to the state-of-the-art. For that purpose, the roof consists of a self-supporting slab, for example, a laminated board of sufficient thickness, which does not require an areal or edge-wise support by supports or frame parts. Consequently, the slab rests directly on the supporting posts, for example, on the top end face of the posts or edge-wise projecting parts, where an underlay, for instance, for height compensation or shock absorption, is not ruled out. Preferably, however, in the lower region the posts have a device for height adjustment, e.g. spindle feet. In order to prevent horizontal displacement of the slab and subsequent sliding off from the supporting posts, limit stops or locking elements are necessary, for example, hooks or bolts, which rest against the edge, engage in recesses in the slab, or penetrate it in apertures, and thus fix it in a horizontal direction. If a bolt is designed as a threaded pin, securing by means of a nut is conceivable. In many cases sufficient stability already obtains if each supporting post solely assures affixation in one direction in space, which results in good stability of the structure through the combined action of the members.

The playhouse according to the invention is characterised by the possibility of

easy and quick assembly, because a low number of parts are used and correspondingly few connections have to be produced. Three or more supporting posts guarantee an excellent mechanical stability, which enables accessibility to the roof. In this case, conceivable is use as a stage which can be scaled suitably through provision of a ladder or supporting posts with steps or apertures. The easy handling of the parts as well as the possibility of their flexible assembly permits constant conversions to the playhouse and its dismantling compactly in little time, if required.

In an advantageous further embodiment of the invention, an especially easy and stable self-supporting slab consists of a cover plate which lies in a parallel orientation on a level framework. Between the slab and the framework, a continuous connection exists, for instance, achieved by gluing together, or a plurality of individual connections at a close distance, e.g. through screw connections or tack nails. Thus both tensile as well as pressure forces are passed on to the framework. In particular, if the distance between the individual supports of the framework is small, a cover plate of lower thickness can be used so that the overall weight of the slab is reduced.

Preferably the framework has cover plates on both sides, i.e. also on the base so

that as a result a box-type support with interior framework, that is, a sandwich-like structure, is created. Advantageously, the hollow space between the two cover plates is closed laterally by a facing so that the exterior appearance is consistent in an advantageous manner to a solid part. Through the base cover plate, which when the slab bends downwards is subjected to a tension load, the rigidity of the part is improved considerably.

Polygonal, in particular, hexagonal slabs have proven purposeful. In case of playhouses of a large area, which require a roof comprising a multiplicity of slabs located adjacently, the hexagonal slabs are laid against one another edge-wise, like a honeycomb, so that a closed roof area is obtained. Preferably, here the posts lend support under the slab corners, where one post supports three adjacent slabs simultaneously. To allow a continuous connection of the playhouse roof to the straight wall of a room or building, in addition to hexagonal slabs, advantageous are also slabs of hexagonal design divided along a median line. Also with other slab shapes, slabs of differing design with edges complementary to one another are advantageous as they allow a continuous connection to room walls and corners of buildings.

Against the background of the pronounced childish imagination, the possibility exists to assemble the playhouse largely without walls so that supervisory persons have a free view inside. To nonetheless achieve a closure vis-à-vis the exterior space, in an advantageous embodiment of the invention, it is proposed to use platelike supporting posts which stand on an end face. The sides of the platelike posts thus form a wall element, which subdivides the interior space or closes it outwards. If the platelike posts are erected at an angle to one another, the stability of the playhouse is also improved to a considerable degree.

With the objective of a further increase in stability, a platelike supporting post is preferred of bent, corrugated or curved cross section. For example, V-, U-, W- or triangular-shaped floor space prevents the supporting posts from falling over from just a slight push. In this way, in particular the assembly of the playhouse is facilitated, before the elements effect mutual support through interconnection. Furthermore, the flexural strength of the posts and thus the stability of the playhouse are increased in an assembled condition.

Advantageously, special V or triangular cross sections of supporting posts are produced through assembly of two or more platelike bodies. The mutual affixation of the platelike bodies is effected, e.g. through edge-wise

extensions, which are inserted into apertures of the adjacent bodies so that an indentation or a pluglike engagement is created. Thus a stable structure is ensured, which with sufficient diameter is also suitable for supporting a plurality of adjoining slabs of the roof.

Recesses in the supporting posts of the playhouse serve as windows and for suspending or inserting objects. Advantageous recesses have, for example, a rectangular cross section, consistent with that of a usual window, which encourages children to act out domestic scenes. Recesses with rounded shapes of different design stimulate the children's creativity.

To optimise the stability of the playhouse vis-à-vis lateral forces, supporting posts are proposed which are affixed to the exterior edge of the slab. They have a greater length than those posts that support the slab vertically, i.e. their length exceeds the distance of the roof from the floor space of the playhouse.

Furthermore, they are provided with a lateral recess in which the slab is inserted edge-wise and whose edge forms a lateral limit stop. Especially when the supporting posts have a slight incline in the direction of the centre of the house or widen on the ground side, this guarantees effective support of horizontal

forces. Cover plates and platelike bodies made from compressed straw, which are bonded with a binding agent, have proven especially advantageous. This material is characterised by a good carrying capacity and owing to its lack of harmful substances and the attractive appearance is especially suitable for use by children.

If the playhouse is assembled inside a building or on its exterior, pillars adjacent to a wall can be omitted if the slab rests edge-wise upon a rail which is affixed to the building. Moreover, the stability of the playhouse is considerably improved in this way because building walls are usually suitable for receiving lateral pressure loads which cannot be achieved through a self-supporting playhouse even with a ground anchoring.

Fastening devices on the base or edge of the slab enable the attachment of curtains, bags, shelves, ribbons or toys that hang down. In particular, in this manner, a closure of the interior room and a considerable increase in the number of attractive play possibilities for the children can be achieved. Suitable fastening devices are, for example, eyelets or hooks.

Preferably, however, the fastening device is a rail in which curtains or toys

and ribbons are affixed so as to be movable. As a consequence, the lateral closure of the playhouse can be opened toward the exterior space, if required. Advantageously, a circumferential rail is provided on the base of the slab, which allows the complete closure of the interior room with a curtain. By means of openings in the curtain, which represent doors or windows, the attraction for children can be significantly increased.

In the case of an accessible roof, i.e. sufficient carrying capacity of the slab, a slide or stairs prove practical, which connect it to the floor space of the playhouse. Preferably, the top end rests upon the edge of the slab. Side rails on the stairs or slide decrease the risk of injury when climbing on to and leaving the roof of the playhouse.

In the case of an accessible roof, the slabs are preferably also provided with a side rail or a parapet, which represent protection against anyone falling over the edge. The affixation can be effected both on the slab itself as well as on the posts. Also in the case of a non accessible roof a parapet affixed to the slabs lends the impression of a solid and stable assembly and is thus advantageous for visual reasons because it increases the attractiveness of the playhouse.

A especially simple assembly and separability is obtained when the affixation of the parts to one another is achieved through plug connections. Advantageously,

the parts are provided with apertures for that purpose into which the extensions of adjacent parts are inserted. Advantageous extensions comprise respectively a shaft, which penetrates the aperture, and a hook attached thereupon end-wise which grasps the edge of the aperture. Parts of the playhouse can thus be combined to one another by inserting the extensions into the apertures, where owing to the gripping hook, tensile loads are also possible. On the other hand, if the parts are moved toward one another parallel to their surface, until the grip by the hook is released, they can easily again be pulled apart.

To secure a connection that is produced in such a way and to avoid it being released unintentionally, a locking element is proposed. It is mounted upon the surface of the part so that it limits the aperture and its free diameter corresponds to the shaft diameter of the extension. When the locking element is mounted the hook can thus cannot be pulled out of the aperture. Securing two parts to each other is effected in that the hook of the extension is first guided through the aperture and is then secured by the locking element. The connection is released in the reverse sequence. In a secured position the hook can rest against both the surface of the part as well as the locking element, where a double hook allows the simultaneous realisation of both possibilities. To prevent the locking element

from being released unintentionally, a U-shaped embodiment is advantageous which grasps the secured extension so as to be form-locking. Furthermore, a fastening to the part or extension is proposed, for example by means of screws.

Further details, features and advantages of the invention can be taken from the following description part in which with the aid of the drawing a typical embodiment is explained greater detail. The drawing shows in a schematic representation

Figure 1: view of a playhouse according to the invention

Figure 2: sectional view of the slab which comprises the roof of the playhouse

Figure 3: elements of a supporting post

Figure 4: elements of an alternative supporting post

Figure 5: stabilisation element for a supporting post

Figure 6: stabilisation element for triangular supporting posts

Figure 7: elements of a side rail

Figure 8: view of a hook-shaped extension with locking element.

In Figure 1, a view of a playhouse according to the invention is shown, which in its basic structure consists of a horizontal slab (1), which is self-supporting and

comprises the roof of the playhouse, and is carried by supporting posts (2). The corners of slab (1) are inserted into recesses (3) of supporting posts (2), which have an edge-wise limit stop (4) as a safety device against horizontal displacement of slab (1). As an alternative to a playhouse with three or more similar supporting posts (2), it is conceivable to place one edge of slab (1) upon a rail (5), which is affixed to the wall (6) of a building. If the roof of the playhouse comprises a multiplicity of slabs (1), in the edge region of adjacent slabs supporting posts (2) are advantageous whose length corresponds to the distance between slab (1) and the floor space and which represent a vertical support.

Supporting posts (2) are composed of respectively two platelike bodies (7), where the angle of both to each other is defined by a stabilisation element (8). Recesses (9) in the posts represent, for example, windows and increase the play possibilities for children. A curtain (10) serves as a wall for the playhouse which is affixed to a guide rail (11) by means of rings (12) so as to be movable and likewise can have windows or door apertures. Above the plane of slab (1) there is a side rail (13) affixed between supporting posts (2) which in the case of an accessible slab (1) represents protection against anyone falling off. Practically, the parts are combined to one another through screw unions or the

affixation is secured, for instance, in the case of a plug connection, preferably through screws or similar to avoid unintentional release.

From Figure 2 one can take the internal structure of slab (1), which comprises a top cover plate (14), a bottom cover plate (15) as well as a framework (16) located between. For cover plate (14, 15), as well as edge rails (17), it offers itself to use compressed straw bonded with a binding agent as a material. Framework (16), which is bonded continuously with cover plates (14, 15), comprises practically overlapping wood lathes which cross one another. Corner elements (18), connected to framework (16) and edge rails (17), serve to brace the structure. In this way, one achieves a self-supporting slab (1) of high stability, which is characterised by a low weight.

Figures 3 – 7 show different parts which are suitable for creating the playhouse according to the invention. The connection of parts to one another is usually achieved by edge-wise extensions (19), which are inserted into apertures (20) of adjacent members.

In Figure 3 a pair of platelike bodies (7) are represented which can be assembled, V-shaped, into the supporting posts (2) represented in Figure 1.

Here, recess (3) serves to receive slab (1). To brace supporting post (2), the stabilisation elements (8) drawn in Figure 5 are used in a horizontal direction in the angle between platelike bodies (7), where their extensions (19) penetrate the horizontal apertures (20).

Three platelike bodies (7) of the same kind, drawn in Figure 4, can be assembled in a triangle to form supporting post (2), which supports slab (1) on its base. The connection of platelike bodies (7) is likewise through engagement of extensions (19) in vertical apertures (20) of an adjacent platelike body (7). This support (2) is also advantageously braced by horizontal stabilisation elements (21) whose extensions (1) engage in horizontal apertures (20) and are represented in Figure 6. Recesses (9) enable the use of stabilisation elements (21) as floor space.

Figure 7 finally shows members for a side rail (13) of the playhouse, which likewise are connected to one another by means of extensions (19) and apertures (20). The end-wise extensions (19) of side rail (13) serve respectively for fastening in apertures (22) in the top region of the platelike body shown in Figure 3.

To secure extensions (19) in apertures (20, 22) against unintentional release of the connections, locking elements (23) are used which are shown in Figure 8. Lockable extensions (19) are provided end-wise with a hook (24), which on one side protrude from its shaft (25). After hook (24) is pushed through aperture (20) of part (26), the aperture cross section is diminished by platelike locking element (23) so that hook (24) can no longer be pulled out. Here hook (24) can rest against both locking element (23) as well as the surface of part (26). The affixation of locking element (23) is advantageously achieved by screws (27) which are screwed into the part (26). Compared with a direct fastening of extension (19) to part (26) through a screw union, one obtains a substantially higher mechanical carrying capacity because the forces are distributed over a large area across the entire bearing surface of locking element (23). Furthermore, a U-shaped recess (28) of locking element (23) is advantageous, which encompasses shaft (25) of extension (19), form-locking, so that even before the use of screws (27) good stability of connection is guaranteed.

As a result one obtains an attractive playhouse for children which can be erected easily and quickly and whose parts can be assembled in different ways.